INSTITUTE FOR THEOLOGICAL ENCOUNTER
WITH SCIENCE AND TECHNOLOGY
(ITEST)
NEWSLETTER

Volume 13, Number 3 July, 1982

For Your Calendar:

The October 1-3, 1982 Conference on "The Meaning of Health" will be held at Villa Redeemer Conference Center in Glenview, Illinois. The speakers will treat this topic from the following aspects: theology (Robert Brungs, S.J., Director: ITEST); medical re-insuring (Robert Morey, Jr., Tiburon, CA.); nursing (Dr. Margarett Anne Schlientz, Comstock Park, MI.); medicine (Richard Wilber, M.D., Syracuse, N.Y.); psychology (Dr. David Munz, St. Louis); hospital administration (Sr. Joan Winkler, Madison, WI). If you are interested in attending this conference, please write to Fr. Robert Brungs, S.J.; Director: ITEST; 221 N. Grand Blvd., St. Louis, Mo. 63103.

The March 11-13, 1983 Workshop is still in the preparation stage. The topic will be the seemingly increasing evidence (for example, the struggle between the creationists and evolutionists) of a revival of the science/faith conflict.

The October, 1983 Conference will deal with the role of Christians trained in science in the encounter between science and faith.

If you have any suggestions for speakers and/or essayists for the 1983 meetings, please write to Father Brungs at the address given above.

NOTES:

The Proceedings of the March, 1982 ITEST Workshop on "Technological Advance and the Survival of the Nation-State" is now at the printer. We hope to be able to mail it to all dues-paid members of ITEST sometime in September.

The Fr. Joseph A. McCallin Fund: Father McCallin died on July 25, 1980. To honor him, ITEST is establishing a memorial fund in his name. Father McCallin, as many of you know, was a long-time Board member and devoted promoter of ITEST.

The primary goal of this fund is to set up an endowment, the interest from which is to be used to provide fellowships for graduate students and post-graduate professional students at ITEST Workshops and Conferences. When appropriate, the endowment may be used to further ITEST goals in other ways, for example, to cover research or publication costs. All who knew Father McCallin are well aware of his interest in ITEST and of his concern for students. This fund is designed to bring these two great interests of his together.

ITEST is a not-for-profit corporation and is tax-exempt under the 501 (c) (3) provision of the Internal Revenue Service. Contributions are tax-deductible. Checks designated for the Fr. McCallin Fund, should be made payable to the Institute for Theological Encounter with Science and Technology and sent to Fr. Robert Brungs, S.J., Director: ITEST, 221 North Grand Blvd., St. Louis, Mo. 63103. We would appreciate whatever contribution you would care to make to this fund for student fellowships.

ITEST Membership:

While our membership has been growing each year and we are at the moment at 500 members in 26 countries, we need a greater increase in membership. We ask each of you to spread the news of our existence and goals to your friends and colleagues. ITEST has grown from its original membership of five strictly by word-of-mouth. Until very recently we have launched no membership campaigns. We are reprinting here a small add we ran in Universitas, the Saint Louis Alumni Magazine. If you know of anyone who would be interested in running such an ad, or a close variant of it, please write to us and let us know. The notice is as follows:

> You have a significant role to play in the Christian mission. The United States Catholic Bishops have stated: "... (scientists) constitute one of those small groups which will be responsible for so much of the mission of the Church in the years to come. Scientists who acknowledge the reign of God should be encouraged to form communities..."
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> One such community, founded in 1968, is the Institute for Theological Encounter with Science and Technology (ITEST). ITEST is a community of about 500 scientists, theologians, and professional people, from 26 countries, engaged in an interdisciplinary and interfaith search for the meaning of scientific advance for Christian understanding and living.
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> For information on ITEST's goals and work, please contact its director, Father Robert Brungs, S.J., 221 N. Grand Blvd., St. Louis, Mo. 63103.

As was mentioned above, if you have any ideas of places where this ad might be placed (and the names of editors, if that is known) please let us know. We do definitely need the input and help of more members.

Congratulations: We would like publicly to extend our congratulations to Dr. D. Bruce Merrifield, a member of the ITEST Board of Directors for many years, on his appointment as an Assistant Secretary of Commerce. Before his appointment to the Commerce Department, Dr. Merrifield was Vice-President for Technology, The Continental Group of Stamford, Connecticut.

A SPIRITUALITY FOR SCIENTISTS

During my first year of college at Saint Louis University, I happened one day to walk into what is now the biology building, but was then the Institute of Technology, and noticed on the lobby bulletin board a sign advertising a "retreat for engineers". It was described as highly "mathematical" and appealing to someone with an engineering background. That is the only attempt I have ever witnessed of a conscious effort made to use an engineering background as a means, rather than an obstacle, to spiritual growth.

I have not seen this much done for scientists. Like assembly-line workers or cooks or nurses or lawyers or salesmen we are asked to "leave our job at home -- outside -- when we come to pray." Why is this so? Why do people have to appear stripped of their professions and giftless before God? Why is it that only priests and religious may bring their ministry with them when they pray? They (and parents) seem to be able to retain their identity and live in it as they grow spiritually. Why can't other professions "come as they are" before God -- rather than as amorphous nobodies?

One might reply that religious life and parenthood are "vocations" whereas these other tasks are mere occupations that could be forsaken at a moment's notice. But those who have experienced the training and dedication necessary in science know that this is not true. Others claim that because scientists "deal with things rather than people" and continually "measure rather than appreciate" that their very profession is an impediment to spiritual growth; and thus it must be prescinded from when one attempts to pray. Nothing could be further from the truth.

If scientific investigation really is a vocation from God (and both my own personal experience as a chemist and first-hand accounts of fellow scientists as well as scientific history so indicate) it is appropriate to ask whether that God who called us to science does not also call us to Himself through science. It is clear in Genesis that God made everything good. This makes scientific activity a double or a bi-level avenue leading us to God. Both those very materials with which scientists work and the act of research itself (especially synthesis or growth research) draw us closer to God by their very nature.

The goodness ot creation has often been described as a carrier of God's love: the psalms testify to this as does St. Francis of Assisi. Even our own experiences indicate that creation communicates that goodness to us, for we examine God's fingerprints in His handiwork. As the thirteenth chapter of the book of wisdom says: "For from the greatness and beauty of created things their original author by analogy is seen." How can one view a sunset and not be moved, or watch a summer moon rise majestically above the shadowed trees and not be struck by the soft granduer of the sight? A fortiori, how could one examine the intricacies of the universe or of the smallest living system and not wonder even more at the delicacy of mind that placed such balance in each and every minute portion of creation? Indeed, material things, because by themselves they are incapable of sin and thus incapable of drawing us away from God, far from hindering us, actually lead us closer to Him. And one is drawn toward Him more intimately as one examines and ponders His works more minutely. Thus if one approaches His handiwork with faith and love, that faith is enhanced by His creation that mediates His existence to us; and that love in inflamed in response to the intricately crafted bounty He has lavished upon us in material reality.

This argument in itself is enough to establish the legitimacy of a spirituality based on science. Whether it is the endlessness of mathematics and astronomy that mediates the immensity of God to us or the precision, delicacy and balance of forces within the blood stream or the entire ecosystem of a planet that shows forth His care for every detail, God's reflection is seen in His creation. Moreover, that reflection finds resonance in us who are not only made in His image and redeemed in His blood, but possess the indwelling of the entire Trinity who holds us too in existence. With messages such as these, science not only need not, but should not, be left outside when one prays.

Yet beyond all this there exists a second road or level of intimacy with God occasioned and enhanced by science. It is revealed in the word "made" where God made everything good. All those who "make" can empathize with and are conformed to God the Son. As a synthetic chemist I have made many things, including molecules that had never been made before. (Contrary to the Old Testament book of Qoheleth, these are "somethings new under the sun".) Any scientist or inventor who has made something knows the exhiliration of the act of creation -- as does any artist -- and we sense a small tinge of how God the Father felt as He created the entire universe. Our senses fall short of complete understanding, for we cannot even now conceive of creating another living being with free will; but we do have some sense of how He knows us "from the inside out" and we can long for the time when as St. John says "we shall know even as we are known". Above all, we can appreciate how much He loves us (even though we turn against Him) and why He can never withdraw that love any more than any scientist could truly disown an invention or material he has made. There may even be a glimpse into the awe-full dilemma of watching the Son He begot murdered by the children He created. If it is at all possible for humans to identify with God the Father, science is the means.

Finally, how do we let our spirits grow as scientists who are redeemed by Jesus Christ and who abide in His love? I suggest that we identify with and adhere to God the Father and continue His work of creation. (His work may be finished but ours is not.) As stewards and lords of His creation let us perfect both ourselves and everything with which we come into contact -- moving mountains, curing diseases, developing new foodstuffs and building materials, and perhaps even engineering whole new forms of life. Truly, in His name let us renew the face of the earth.

Thus let us prepare the earth for the second coming of Jesus Christ, as God the Father prepared it for His first coming. On that first Christmas night, earth and heaven trembled for joy at what occurred, and simply could not keep silent. Those who watched and listened, the shepherds and Magi, had prepared themselves and their gifts for Him: the genetically best of flock and herd, and gold, frankincense and myrrh. They brought these, adored and offered them to Him. When He comes again we, their successors, can do the same.

Father Patrick J. Dolan
St. James Catholic Church
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Louisville, KY. 40204

LETTER FROM HONGKONG

The following are excerpts from a letter sent by Harold Naylor, Wah Yan College, 56 Waterloo Road, Kowloon, Hongkong. They are printed here with the permission of the author.

I had just read "Warfare in the 1990's" (ITEST, October '81) when the news came of the conflict in the Falkland Islands. The detailed knowledge and skillful arguments of the speakers gave me fine background. Yet I heard the Pope's talk at Coventry Airport today as it came in over the wireless. I remember these words particularly: "Today, the scale and horror of modern warfare -- whether nuclear or not -- makes it totally unacceptable as a means of settling differences between nations. War should belong to the tragic past, to history. It should find no place on humanity's agenda for the future."

Surely the conclusion is painfully clear. But does this mean unilateral disarmament? Does it entail a retrenchment of sophisticated weapons systems? Does it allow for the maintenance of regular armed forces with discipline and determination? Could it not be possible to arrange an in-depth discussion on the level of political science, ethics, theology, and military technology in order to see the implications and consequences of a new vision of life and what is for the happiness of all of us?

When I received your last Newsletter, I wanted to write a few paragraphs about Christian thinking on modern problems. The occasion for this was a lecture by the author of many theological books in the U.S. He is now writing a book on creation and modern science. He felt that we needed to use modern scientific concepts and terminology. He correctly pointed out that most churchmen had a literary and liberal arts background, but almost no acquaintance with modern science. He asserted that all theological writing used terminology rooted in pre-1650 vocabulary and thus commanded little respect among our contemporaries.

I feel, however, that a transfer of terminology to a different "universe of discourse" is foolish. Terminology and language reveal a mind and express a culture. Every true thinker forges new language and creates a new terminology. It is not so much a matter of mouthing words as it is of understanding the issues. In the instance of the technology of warfare now and during the next decade, it will be a great achievement to master merely what is talked about. The issues of the value of life and its meaning, of the goals of a country and its security, of relations with other countries and of diplomacy -- these pertain to common sense and to history and philosophy. If one tries to act in a sensible way one will find it difficult to treat easily the mechanism of the Exocet missile, the strategic value of the Falklands, British sovereignty in the South Atlantic, and the moral issues involved in that conflict.

We need a humanistic education to be more fully human, to be able to communicate and express ourselves. We need reflectively to develop our consciences to see the social and ethical implications of our actions. I see ITEST doing this. We need people who understand the limits of their own knowledge. We need to be able to speak simply on the uncommon common-sense level.

Watching young people playing the new electronic games I find myself musing about the illusion that so holds their attention. But much of our talk and thought can be just as illusory if we do not apprehend the limits of our imaginary and visual comprehension.

Reality is understood, not imagined.
Awareness and silence lead to wisdom.
The ability to share one's understanding with others of disparate backgrounds leads to better perspectives.
Attentiveness and acceptance lead to growth.
The grasp of the profundity of our ignorance may make us more prudent, less precipitate.
May stillness and perceptiveness encourage us to explore, so that we may be happy and free -- even in technology, theology, and human wholeness.

COMMENTS ON "WARFARE IN THE 1990's"

The following are some remarks on the Oct., 1981 ITEST Conference on "Warfare in the 1990's". They come from Lawrence Follis, 2611 South 14th Street, Leavenworth, KS. 66048.

From Professor Rathjens' paper (last paragraph, p. 18) "Once the (nuclear fission) program got started most of the people in the United States who could contribute to it willingly did so. They did so, as I have noted, because of fear that if we didn't do it first, the Germans would develop nuclear weapons and use them in ways that could be catastrophic. It tells something, though, about the attitude of the scientific community that, when the war with Germany came to an end, and there was no possibility that the Germans could develop a nuclear weapon, there was only one person, as far as I know, in the whole group of scientists who were involved, who then and there, resigned, withdrew from the program, on the grounds that the original rationale no longer existed."

COMMENT: The weapons development field in the United States comprises what has been called a vast technological WPA. Professor Rathjens here refers to the start of the nuclear weapon part of this WPA. The number of people (university, industry, government, military) involved in weapons development and use in the U.S. runs into the millions, so that collectively, at least, the weapons development community is a great vested interest. They want to keep the weapons development/military preparedness pot boiling. A sudden peace would be an economic disaster for these people and, indeed, for the entire country. U.S. senators from the various states like to be the first to announce the aware of large military development contracts having an effect on their state. Senator Nunn of Georgia recently said that the U.S. military has been taking on the character of "an armed WPA." A major point to be made is that we discuss the alternative use of our technology very infrequently. For what other purposes than weapons development could/should the U.S. use its technical resources?

I would like to paraphrase something G.K. Chesterton said in his book What's Wrong with the World: If a man goes to a hospital he might be unfortunate to come home with only one leg. But at least the doctor would never try to send him home with three legs. Why? Because the doctors know what is right for the human body. And that is just what is wrong with the world -- people talk forever about the things that are wrong with the world, but nobody ever asks what is right for the world.

As far as I know nobody has ever bothered to paint a picture of what the world should be like and what it could be like if the resources used for weapons development were to be used for other purposes.

In order to avoid the economic disaster following a sudden peace, it would appear that alternative uses of the U.S. technology should be identified in advance. There is at least a hope that the U.S.S.R. might get interested.

RATHJENS (p. 25) "I was at a study this summer, involving a number of people who have had responsibility in the last decade for these kinds of matters, and we talked about whether or not we need to improve the U.S. command and control system for the use of these (nuclear) weapons. There was an absolute consensus...that it was the single greatest problem with our nuclear forces. But I had reservations. Everybody else in the group felt that we should spend more money on command and control. Some said if we were to spend twenty-five billion more, maybe we would be able to control these things, in a way that would be predictable. My view was that probably we would not be able to do so: that we might kid ourselves...We could fool ourselves into thinking that we could control them, and political leaders might make decisions based on that assumption that would be catastrophic."

COMMENT: The words 'command and control' as used here appear to refer to a technique by means of which employment of nuclear weapons might be controlled in the sense of being restricted as to the number of weapons used. However, 'command and control' (which is defined in JCS Pub. 1) refers to procedures, equipment, and personnel by means of which military forces are directed regardless of what type weapons are involved. The procedures set up to request authorization for employment of tactical nuclear weapons would make use of the command and control system which was in place at the time.

OTHER BRIEF COMMENTS

There is a general agreement that combat in the 1990's will move faster and be far more destructive than in the past, even if nuclear weapons are not used.

If you ask five qualified military people what they think on any given subject you will get six different opinions.

It is easy to share the apprehension of the nuclear freeze people. Napoleon said that you can do anything with bayonets except sit on them.

(Page 91, 1st paragraph) Since it takes 10 plus years to develop a new weapons system, we can get some idea of what warfare might be like in the 1990's by examining the weapons in early stages of development, plus the weapons in the later stages of development, plus the weapons fielded.

(Page 99, middle) There is an old joke to the effect that if Red China had a war they could soon win it by letting a million of their men be taken prisoners on the first day of the war, letting another million be taken as prisoners on the second day, etc., etc.

(Page 103) What the force of the statements of various Church representatives is, is probably old hat to religious and committed laymen. I would suggest that it is not at all clear to the average lay person or non-Catholic. The same comment applies to the remarks by Mr. Doherty on pages 104 and 105. The mechanics of how the Bishops arrive at their positions and the force of these positions strikes me as something which deserves to be better known.

During the conference some speakers made comments about deterring nuclear war and it sounded as though a procedure or technique was being sought which would solve the problem of deterrence. But one can deter somebody (from using nuclear weapons) only if that somebody knows the facts about the dangers of possible retaliation and behaves rationally and remains rational during times of crisis. We could evidently deter the reasonable enemy leader quite readily. But again, how do we deter an enemy leader/nation subject to emotional/psychic, etc., forces (personal and collective) about which we know so little and over which we have little control. Because of these factors beyond our control, we evidently cannot ever guarantee any kind of deterrence. The threat of nuclear war and deterrence are not 'problems' but situations we are going to have to live with as long as there are nuclear weapons.

If this argument is correct, then it would appear that we have two choices. We can trust men not to use nuclear weapons and this is obvious madness to all. Or, we can say 'In God We Trust' regardless of what might happen. This will appear to be madness only to some. The Old Testament recounts many occasions on which God prevented Israel from suffering military defeat and other occasions on which defeats were allowed. To what extent is our current situation similar to that of Israel? Perhaps theology can make a comment here.

FIVE YEARS AGO in the ITEST Newsletter -- The above is an excerpt from a talk by Professor Rustum Roy, Penn State University.

I turn now to the prescriptive part of my presentation. What can we do? I will address myself to three communities separately. First, the community of scientists from which I come. The first thing we must do, I think, is eat humble pie. We really ought to start recognizing and proclaiming the limitations of science in addressing societal problems. I'm going to quote Governor Lamm again: "We must disenthrall ourselves from the deceitful notion that science is the key to our political future. It is only one key and likely not the major one." Let's not kid ourselves. Science isn't the key to anything except for science.

The second aspect scientists should address is: Has science faced the intrinsic questions which society wants to ask even about science itself? Let me give you an example. What is the optimum budget level at which the United States should support science? Does anybody recall a great debate in the United States' scientific circles on that crucial topic, or on the priorities within science? Asking this question throws every scientific group into total disarray. This group of citizens that some believe can solve society's problems have not been able to address the simplest societal problem directly relevant to science; how to establish the proper level of the budget for science.

Next we turn to the question: which science should we do? If you want to see a cat-and-dog fight ask physicists and biologists which should get more money: DNA research or another accelerator. Can scientists set priorities as among their own separate sciences? Or how much public money should go for basic and how much for applied research? Today all these decisions are made in a totally political non-rational, unscientific way. Dean Harvey Brooks speaking at the Denver meeting of the International Radioactive Waste meeting said: It is a measure of how de-coupled scientists are from society that the whole issue of nuclear waste had such a low priority in the budget and the thinking of the Atomic Energy Commission over 30 years. And yet for the public it was a very important issue. Well, where were these wonderful scientists who knew all about the problems of society? Could we not understand even our own

scientific problems from society's view point. The question of exporting the morality of science is far away - what about the morality within science? It is now clear that as science becomes a part of mass culture we find that all the societal virtues and vices surface within the scientific establishment. All the back-biting and cheating - we have all heard the many recent stories about people owning up to dishonesty in cooking up data, and so on. That's only the tip of the iceberg. The cognoscenti all know how the big science system works, that there's the normal amount of chicanery among scientists in reviewing papers and proposals and that they have exactly the same degree of honesty and morality as the average citizen.

Now to turn to the prescription for the second group; activist citizens and educators. What can they do? I think firstly, if they really mean business about finding the right place for science in society, they better insist on wholeness in the education of their children and of the public. Because I can tell you, no school board and certainly no university is about to do it without outside pressure. The university is a group of little departmental fiefdoms, intent on survival and there is no "department" which is supposed to attend to the educational needs of society. To be able to do that one must look at the whole, and the citizenry has a right to put pressure and demand -- and the students have a right to demand -- the proper education for the 21st century. An education which is vastly more integrative of the humanities, science, art and religion; where the enormous impacts of science on society are a major part of the learning. I don't think these educational systems are going to be self-healing. They have no corrective mechanisms built in and they're 50 years out of date.

Conversely, from these citizen critics, the scientific community can surely ask, "Please, no cheap shots." Don't make offhand, silly criticisms of the science which has also helped -- if it can hurt it can, and has, also helped make possible modern society. So ill-formed criticism aimed at unleashing fear in the masses should be verboten. We must stop that kind of irresponsible behavior.

Finally, I must prescribe for the non-technical citizen majority. To put science in its proper place, knowing both its enormous potential and its limitations really requires hard work, intellectual hard work to be able to understand the nature of the problem, and the potential role of science and the scientist, in one's own linguistic framework. To do this will also require that the scientists and engineers devote a much larger fraction of their efforts to interpreting their work to the public. This is the most obvious first step which every elitist scientist rushes to bypass in his hurry to get the ear "of the real decision-makers in power." Most U.S. scientists transport the necessarily elitist paradigm of science, to the world of politics, unconsciously forsaking their democratic traditions. For the scientist all this also means the psychological hard work of giving up the god-like stance which mass society has assigned to us. But life for both scientist and citizen would be much better if together, as components of a total society, they addressed the problems of that whole society, applying science's wisdom and power judiciously, where it is appropriate.